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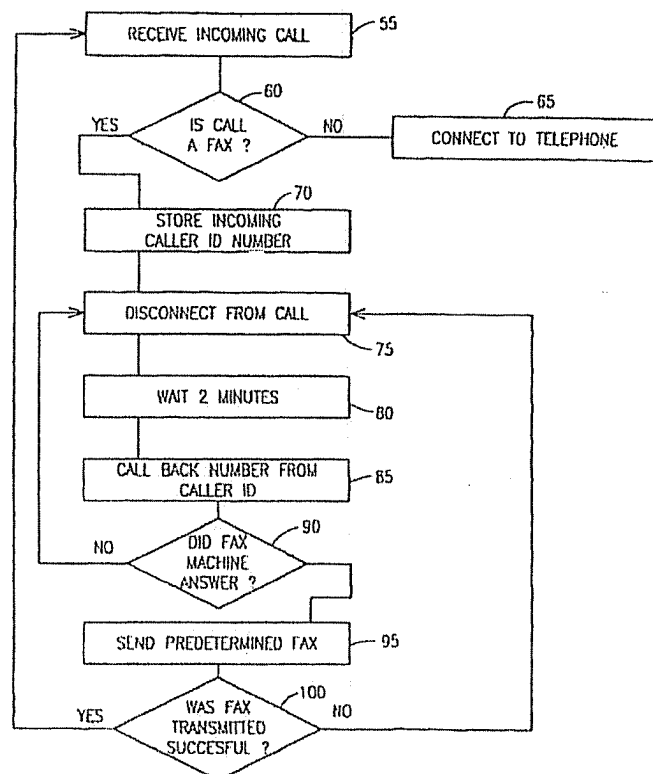
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(54) Title: FACSIMILE SIGNAL INTERCEPTION DEVICE



(57) Abstract: A facsimile signal interception device (10) provided to prevent incoming facsimile transmissions (Fig. 2) to a telephone voice-only line. The incoming telephone call (15) is detected and a determination (20) is made if the call is that of a facsimile machine attempting to make a connection with another facsimile machine. If not, then the call is forwarded to a regular conventional phone. If so, then the incoming caller's number is identified utilizing Caller ID (35), and a reply message is sent to inform the first caller of the error.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

FACSIMILE SIGNAL INTERCEPTION DEVICEBACKGROUND OF THE INVENTION1. Field of the Invention

5 The present invention relates generally to telephone answering devices and, more particularly, to a device designed to prevent incoming facsimile transmissions to a telephone voice-only line.

10 2. Description of the Related Art

 As conceived, the invention prevents incoming facsimile transmissions to a telephone voice-only line. The incoming telephone call is detected and a determination is made if the call is that of a facsimile machine attempting to make a
15 connection with another facsimile machine. If not, then the call is forwarded to a regular conventional phone. If so, then the incoming caller's number is identified utilizing Caller ID, and a reply message is sent to inform the first caller of the error.

20 In the related art, many devices are known that allow for the automatic switching of telephone signals. In the consumer arena, automatic telephone answering machines are commonly used to receive calls and record messages when the user is unavailable.

25 Another problem occurs from the use of facsimile devices. Facsimile machines generally are capable of acknowledging an incoming facsimile transmission. However, when attempting to communicate an outgoing message, facsimile machines are not capable of acknowledging and remembering that outgoing
30 transmissions are not contacting similar connection devices, and rather rely heavily on personal intervention to maintain database information for use with polling, forwarding, or broadcast facsimile messages. The end result of this is that the recipient of an unwanted facsimile message to their voice
35 phone or answering machine may suffer through a series of such incomplete attempts until a user at the sending end provides

the necessary intervention.

SUMMARY OF THE INVENTION

5 Therefore, it is an object of the present invention to provide an improved telephone answering device.

It is a feature of the present invention to provide an improved telephone answering device designed to prevent incoming facsimile transmissions to a telephone voice-only line.

10 Briefly described according to one embodiment of the present invention, a facsimile signal interception device is provided that will detect an incoming telephone call. If the telephone signal is of the analog type commonly found in the United States and referred to as POTS, the signal is then
15 analyzed by a facsimile analysis circuit which looks for the trademark high-pitched whine of a facsimile machine attempting to make a connection with another facsimile machine. In the event that the call is not that of a facsimile machine, an output from the facsimile analysis circuit energizes a relay
20 which, thus forwarding the call to a regular conventional phone, where it might be answered by a user, a telephone answering machine or other typical conventional device. Should the call be from a facsimile machine, a Caller ID circuit makes note of the incoming caller's number.
25 Simultaneously, the facsimile analysis circuit initializes a timing module, which allows a delay for the facsimile machine which placed the errant call, to complete its transmission cycle and reset itself. At this point the output of the timing module energizes an outgoing call circuit, which places
30 an automatic call to the facsimile machine as identified by the caller ID furnished by the Caller ID circuit. When or if the errant calling facsimile machine answers, a predetermined facsimile message, stored in an electronically stored facsimile message circuit is sent.

35 An advantage of the present invention is that it prevents

errant incoming facsimile calls from ringing to the user's voice phone.

Another advantage of the present invention is that it will return a call to the errant facsimile machine in order to notify it of the initial error.

Further, a preferred embodiment of the present invention has the capacity to generate a facsimile transmittable text message, thereby allowing the user to customize the return message being sent.

DESCRIPTIVE KEY

10	facsimile signal interception device	55	first functional block
15	input jack	60	first operational block
20	facsimile analysis circuit	65	second functional block
25	relay	70	third functional block
30	output jacks	75	fourth functional block
35	Caller ID circuit	80	fifth functional block
40	timing module	85	sixth functional block
45	outgoing call circuit	90	second operational block
50	electronically stored facsimile message circuit	95	seventh functional block
		100	third operational block

BRIEF DESCRIPTION OF THE DRAWINGS

The advantages and features of the present invention will become better understood with reference to the following more detailed description and claims taken in conjunction with the accompanying drawings, in which like elements are identified with like symbols, and in which:

FIG. 1 is a functional schematic block diagram of the facsimile signal interception device 10 according to a preferred embodiment of the present invention; and

FIG. 2 is a flow diagram depicting the logic sequence of the facsimile signal interception device 10.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 1, a facsimile signal interception

the present invention. An incoming telephone call is present at an input jack 15. The telephone signal would be of the analog type commonly found in the United States and referred to as POTS. The signal is then analyzed by a facsimile analysis circuit 20, which looks for the trademark high-pitched whine of a facsimile machine attempting to make a connection with another facsimile machine. In the event that the call is not that of a facsimile machine, an output from the facsimile analysis circuit 20, energizes a relay 25 which connects the input jack 15 to a set of output jacks 30, thus forwarding the call to a regular conventional phone, where it might be answered by a user, a telephone answering machine or other typical conventional device.

Should the call be from a facsimile machine, a Caller ID circuit 35 makes note of the incoming caller's number, should it be available, for later use. Simultaneously, the facsimile analysis circuit 20, initializes a timing module 40. The timing module 40, envisioned to have a cycle time of 2 minutes, allows the facsimile machine which placed the errant call, to complete its transmission cycle and reset itself. At this point the output of the timing module 40 energizes an outgoing call circuit 45, which places an automatic call to the facsimile machine as identified by the caller ID furnished by the Caller ID circuit 35. When or if the errant calling facsimile machine answers, a predetermined facsimile message, stored in an electronically stored facsimile message circuit 50 is sent. It is envisioned that the message stored in the electronically stored facsimile message circuit 50 would warn the owner of the errant facsimile machine that an incorrect number was dialed. Stronger wording warning the owner to remove the subject number from the facsimile machine's dialing memory or face possible legal ramifications could also be used. Upon successful sending of the warning facsimile, the invention is ready to repeat the above-mentioned process.

Referring next to FIG. 2, a logic flow diagram associated

with the facsimile signal interception device 10 is depicted. The process begins at a first functional block 55 where the facsimile signal interception device 10 waits for and receives an incoming call. Upon receipt of a call, a first operational block 60 decides if the said incoming call is a facsimile or a non-facsimile phone call. In the case of a negative response, a second functional block 65 then returns control to the regular phone system by forwarding the call to a conventional telephone or telephone system. In the case of positive response at the first operational block 60, the system records the errant facsimile's machine originating telephone number by use of a Caller ID system which is well-known in the art. The system then disconnects from the errant facsimile transmission, so as to not occupy the telephone connection any more than necessary, and then begin an internal timing cycle, as indicated by a fourth functional block 75 and a fifth functional block 80 respectively. Upon completion of the timing cycle, a sixth functional block 85 then places an outgoing call to the number as stored by the third functional block 70, as aforementioned described. In case of an unsuccessful connection, as determined by a second operational block 90, the control returns to the fourth functional block 75 where the process repeats. In the case of a positive connection, a seventh functional block 95 then transmits the electronically stored facsimile message alerting the errant facsimile owner to the incorrect number that was being used. A third operational block 100 ensures that the message was delivered to the errant facsimile user by way of a positive response that returns control the first functional block 55, or to the fourth functional block 75 in the case of a negative response.

It is envisioned that other styles and configurations of the present invention can be easily incorporated into the teachings of the present invention, and only one particular configuration shall be shown and described for purposes of clarity and disclosure and not by way of limitation of scope.

The preferred embodiment of the present invention can be used by the common user in a simple and effortless manner. Once installed, the facsimile signal interception device 10 operates in a transparent manner, such that its operation is not apparent to the unknowing user. The operation of the facsimile signal interception device 10 is best described in conjunction with FIG. 1, through FIG. 2.

After acquisition of the facsimile signal interception device 10, the user would first connect the facsimile signal interception device 10 by terminating their incoming phone line at the input jack 15 and the balance of their internal phone system to the output jacks 30. Due to the nature in which the facsimile signal interception device 10 must seize control of the phone line, it cannot be added in an electrically parallel connection to the user's existing phone system, by simply plugging into an extension jack. After connection of a suitable power source to the facsimile signal interception device 10, it is ready for automatic use.

Upon receipt of an incoming call, the facsimile signal interception device 10 will determine if said call is a facsimile transmission. If not, the facsimile signal interception device 10 will forward the call on to the output jacks 30, for normal usage. If so, the facsimile signal interception device 10 will call back the errant facsimile machine and transmit a warning facsimile to prevent further occurrences as defined by FIG. 2.

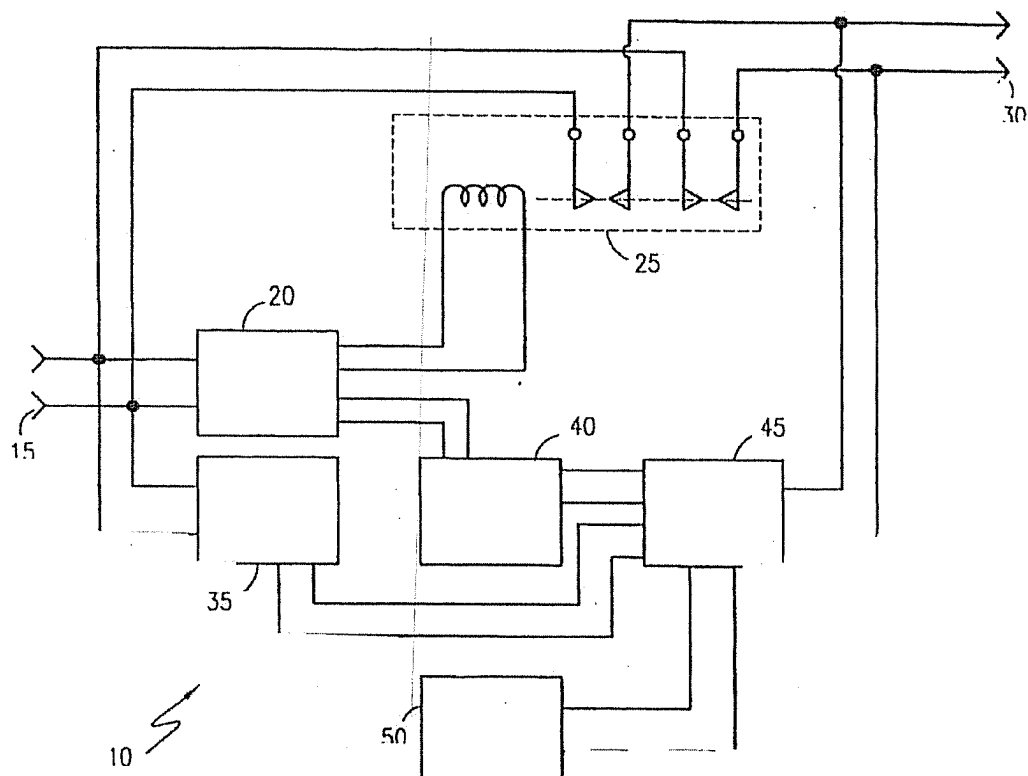
The foregoing descriptions of specific embodiments of the present invention have been presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed, and obviously many modifications and variations are possible in light of the above teaching. The embodiments were chosen and described in order to best explain the principles of the invention and its practical application, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are

suited to the particular use contemplated. It is intended that the scope of the invention be defined by the Claims appended hereto and their equivalents. Therefore, the scope of the invention is to be limited only by the following claims.

CLAIMS

What is claimed is:

1. A facsimile signal interception device comprising:
 - 5 a facsimile analysis circuit for receiving an incoming telephone signal and determining the presence of an incoming facsimile transmission;
 - an output from said facsimile analysis circuit which energizes a relay upon detection of an incoming facsimile transmission;
 - 10 a first output jack in electrical communication with an input jack upon energizing of said relay, thereby forwarding an incoming call to a regular conventional phone;
 - a Caller ID circuit for recording the incoming caller's number should said relay fail to energize;
 - 15 a timing module parallelly activated with said Caller ID circuit;
 - an outgoing call circuit which places an automatic call to the number as identified by the caller ID furnished by the Caller ID circuit after timing out of said timing module.
- 20 2. The facsimile signal interception device of Claim 1, further comprising:
 - an electronically stored facsimile message circuit for storing a predetermined facsimile message and transmitting
 - 25 through said outgoing call circuit.

Fig. 1

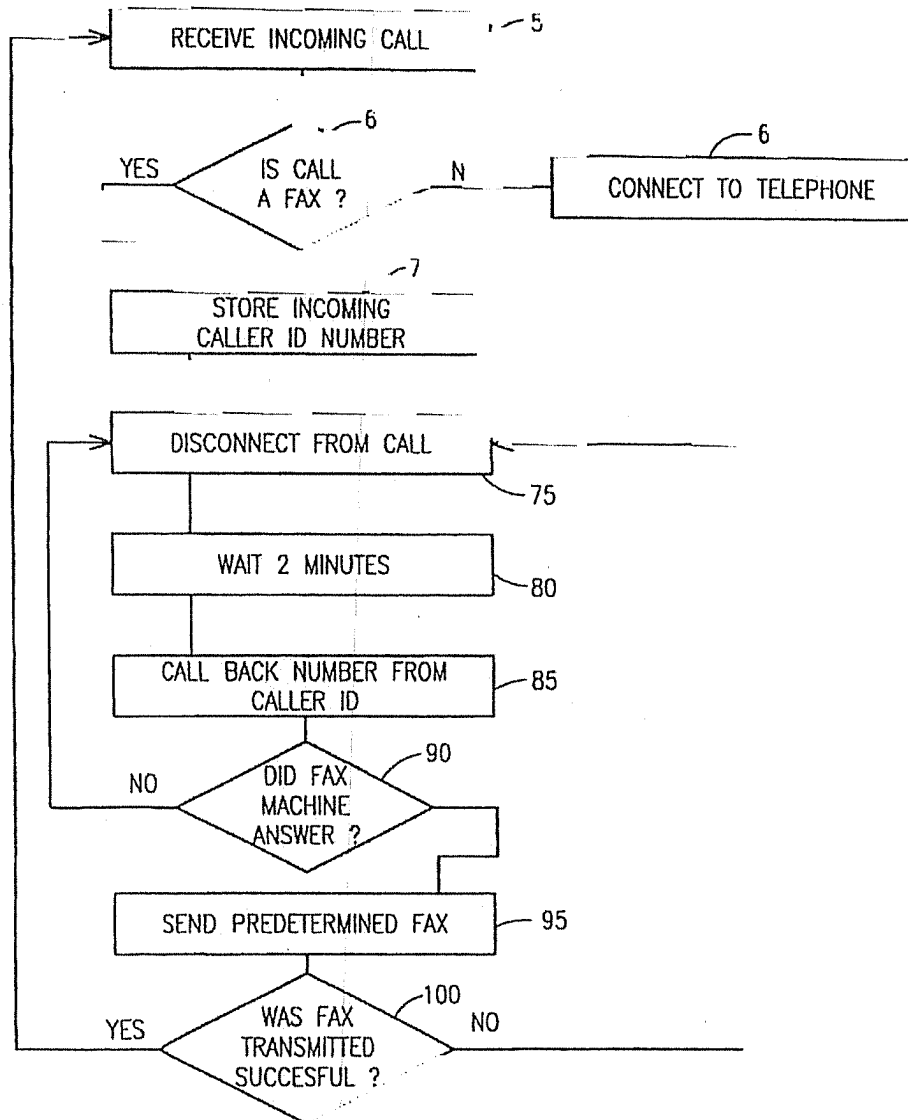
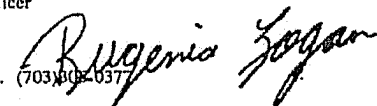


Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/11474

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : H04M 1/56, 15/06; H04N 1/00, 1/32 US CL : 379/100.09, 70, 213.01, 88.21, 88.2 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 379/100.09, 70, 213.01, 88.21, 88.2 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y ✓	US 5,307,174 A (SAITO) 26 April 1994, col. 2, lines 35-57; col. 3, line 40 to col. 4, line 10; col. 5, lines 19045; Fig. 2; col. 7, line 46 to col. 8, line 7; col. 8, line 56 to col. 9, line 3	1-2
Y ✓	US 5,696,600 A (PERKINS) 09 December 1997; col. 12, lines 44-53; col. 13, lines 6-12	1-2
Y, P ✓	US 6,542,591 B1 (AMRO et al) 01 April 2003; col. 11, lines 58-65; Figs. 8-10; Abstract	1
Y ✓	US 5,970,128 A (KIM) 19 October 1999, ALL	1-2
Y ✓	US RE37,073 E (HAMMOND) 27 February 2001, ALL	1-2
Y, P ✓	US 6,522,736 B1 (TOYODA et al) 18 February 2003, ALL	1-2
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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Date of the actual completion of the international search 09 June 2003 (09.06.2003)		Date of mailing of the international search report 16 JUL 2003
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230		Authorized officer Forester Isen Telephone No. (703)305-0377 

INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

US Patent Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical
Disclosures Bulletins; US PG-PUB Database

Technical Terms used: facsimile signal interceptor; caller ID; caller Identification Callback